## Spanning the Gap

## NATIONAL PARK SERVICE

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**Hemlock Woolly Adelgid** 

Spanning the Gap
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The hemlock woolly adelgid (HWA) is an aphid-like insect that sucks the sap from the Eastern Hemlock tree and, in doing so, kills the tree.

A native of Asia, the adelgid was first observed in the Pacific Northwest of the United States in 1924 where it seemed to do little damage to the Western Hemlock. Forty years ago, it was first found on the east coast of the United States in Virginia, and it is believed to have spread north during Hurricane Gloria in 1985. The Eastern Hemlock, the tree that is found in all of the recreation area's cool, pristine ravines, has become this parasite's favorite host.

Entire hemlock forests have been devastated in the Connecticut River Valley and in eastern New York and New Jersey. The adelgid was first seen in the recreation area in 1989 and by 1992, had moved rapidly north up both sides of the Delaware River. It can now be found virtually throughout the park.

The adelgid is easily identified by the white, woolly secretion that covers the eggs it leaves on hemlock needles. Heavily infested trees may appear as if they have snow-covered branches. Scientists are still uncertain as to why even very small populations of the adelgid can cause trees to lose vigor and even to die. The current explanation for this phenomenon is that the adelgid injects a toxin into the hemlocks during feeding. The adelgid has a tendency to attack new growth, whether on mature or sapling hemlocks.

To date, no reliable control method has been found



Raymondskill ravine. The area closed for a period of time in 2005 due to trees which have died from insect infestation. Other areas, such as Childs Park PA, have also been temporarily closed due to the hazard of dead and dying trees.



A hemlock branch shows an infestation of woolly adelgid. (NPS photo by Rich Evans)

An excerpt from a 2005 update by the park's ecologist:

In 1995, HWA only infested about 50% of DEWA hemlock stands; by 1999, it infested

for hemlocks found in forest settings. Scientists have searched for predator species in Asia, but none have been found. Application of dormant oil works as a management treatment for individual hemlock trees, but, to be effective, the entire tree must be coated. Unfortunately, this type of total foliar coverage is not feasible in forest settings.

One way in which the National Park Service attempts to combat this insect is through education. Researchers have found that the adelgid can spread to uninfected areas mechanically in the wind, on birds, mammals, automobiles, and humans. You can help in the management of the hemlock woolly adelgid by identifying the small, white, fuzzy balls at the base of the hemlock's needles and then staying clear of these trees. Brushing against them or taking any branches home will help to spread the adelgid. For now, only time will tell how this small insect will affect the beautiful hemlock forests of the recreation area.

nearly 100% of stands. By 2004, no hemlock trees in our plots were "healthy," and over 20% were dead; the remaining trees were in various stages of decline. Hemlock decline is widespread throughout the park, but is most severe on "mid-slopes" along the Kittatinny Ridge (NJ). Mild winters (climate change connection) allow high HWA populations to develop. HWA severely curtails hemlock new growth, and increases "crown transparency" and "die back." Hemlocks are also stressed by droughts (climate change connection) and "secondary" pests such as hemlock scale insects (alien) and hemlock borer beetles (native).